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Server/Workstation
Motherboard

E3C224D4M-16RE

User Manual

English



Version 1.1

Published October 2014

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

ASRock Rack's Website: www.ASRockRack.com

Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at www.ASRockRack.com; or you may contact your dealer for further information.

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Chapter 1 Introduction

Thank you for purchasing ASRock Rack **E3C224D4M-16RE** motherboard, a reliable motherboard produced under ASRock Rack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock Rack's commitment to quality and endurance.

In this manual, chapter 1 and 2 contains introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contains the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock Rack website without further notice. You may find the latest memory and CPU support lists on ASRock Rack website as well. ASRock Rack's Website: www.ASRockRack.com

*If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
<http://www.asrockrack.com/support/>*

1.1 Package Contents

- ASRockRack E3C224D4M-16RE Motherboard
(Form Factor: 12.0-in x 9.6-in, 30.5 cm x 24.4 cm)
- User Manual
- Support CD
- 2 x Serial ATA (SATA)3 Data Cables (60cm)
- 2 x Mini-SAS HD to 4 SATA Cable (12G)
- 2 x I/O Panel Shields (1 for M540/M350; 1 for M599)
- 1 x SGPIO Board (SGPIOB)
- 1 x SGPIO 8PIN Cable (500mm, MB to SGIOPB)
- 1 x SGPIOB to Backplane Cable (500mm)



If any items are missing or appear damaged, contact your authorized dealer.

1.2 Specifications

E3C224D4M-16RE	
MB Physical Status	
Form Factor	ATX
Dimension	12" x 9.6" (30.5 cm x 24.4 cm)
Processor System	
CPU	<ul style="list-style-type: none"> - Single socket H3 (LGA 1150) supports Intel® Xeon processor E3-1200 v3 series & Haswell i3 processors - Supports Hyper-Threading Technology
Socket	Single Socket H3 (LGA1150)
Chipset	Intel® C224
System Memory	
Capacity	<ul style="list-style-type: none"> - 4 x 240-pin DDR3 DIMM slots - Support up to 32GB DDR3 ECC UDIMM
Type	<ul style="list-style-type: none"> - Dual Channel DDR3 memory technology - Supports DDR3 1600/1333 ECC DIMM
Voltage	1.5V, 1.35V
Expansion Slot	
PCIe 3.0 x 16	2 slots (x8)
Mezzanine slot	1 slot
Storage	
SATA Controller	Intel® C224 : 4 x SATA3 6.0 Gb/s, 2 x SATA2 3.0 Gb/s, Support RAID 0, 1, 5, 10 and Intel® Rapid Storage
Additional Storage Controller	LSI3008 + Expander 3x24R : 4 x Mini SAS HD connector (SAS 12G x 16 port)
	<i>*Support up to 10-port with RAID 0, 1, 1E, 10, NCQ and Hot Plug</i>
Ethernet	
Interface	Gigabit LAN 10/100/1000 Mb/s
LAN Controller	<ul style="list-style-type: none"> - 2 x Intel® i210 - Supports Wake-On-LAN - Supports Energy Efficient Ethernet 802.3az - Supports Dual LAN with Teaming function - Supports PXE
Management	
BMC Controller	ASPEED AST2300 : IPMI (Intelligent Platform Management Interface) 2.0 with iKVM support
IPMI Dedicated GLAN	1 x Realtek RTL8211E for dedicated management GLAN
Features	<ul style="list-style-type: none"> - Watch Dog - NMI

Graphics	
Controller	ASPEED AST2300
VRAM	DDR3 16MB
Output	Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz
Rear Panel I/O	
VGA Port	D-sub x 1
USB 2.0 port	2
USB 3.0 port	2
Lan Port	- 2 x RJ45 Gigabit Ethernet LAN ports - 1 x RJ45 Dedicated IPMI LAN port - LAN Ports with LED (ACT/LINK LED and SPEED LED)
Serial Port	1 (COM1)
UID Button/ UID LED	1
Internal Connector	
COM Port Header	1 (COM2)
Front Lan LED Connector	1
Auxiliary Panel Header	1 (includes chassis intrusion, location button & LED, front LAN LED)
TPM Header	1
Thermal Sensor Header	1
IPMB Header	1
Buzzer	1
Fan Header	5 x 4-pin
ATX Power	1 (24-pin) + 1 (8-pin)
USB 2.0 Header	2 (each support 2 USB 2.0)
Type A USB 2.0 Port	1 (Vertical)
USB 3.0 Header	1 (each support 2 USB 3.0)
Dr. Debug with LED	1
System BIOS	
BIOS Type	64Mb AMI UEFI Legal BIOS
BIOS Features	- DRAM Voltage Multi-adjustment - ASRock Instant Flash

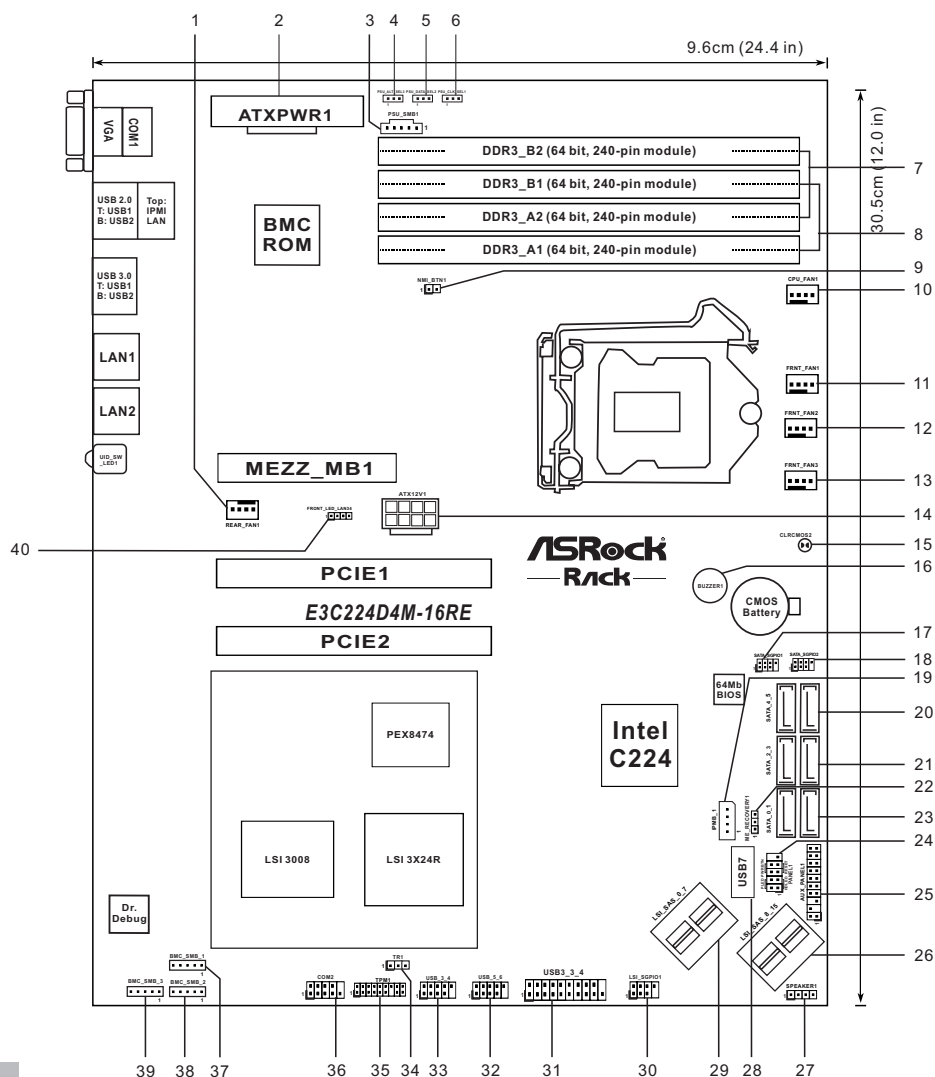
Hardware Monitor	
Temperature	<ul style="list-style-type: none"> - CPU Temperature Sensing - System Temperature Sensing
System Temperature Sensing	<ul style="list-style-type: none"> - CPU/Rear/Front Fan Tachometer - CPU Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU Temperature) - CPU/Rear/Front Fan Multi-Speed Control
Fan	<ul style="list-style-type: none"> - CPU/Rear/Front Fan Tachometer - CPU Quiet Fan (Allow CPU Fan Speed Auto-Adjust by CPU Temperature) - CPU/Rear/Front Fan Multi-Speed Control
Voltage	Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore, DRAM, 1.05V_PCH, +BAT, 3VSB, 5VSB
Support OS	
OS	<p>Microsoft Windows</p> <ul style="list-style-type: none"> - Server 2008 R2 SP1 (64 bit) - Server 2012 (64 bit) - Server 2012 R2 (64 bit) <p>Linux</p> <ul style="list-style-type: none"> - RedHat Enterprise Linux Server 5.9/6.4 (32 / 64 bit) - CentOS 5.9 / 6.4 (32 / 64 bit) - SUSE Enterprise Linux Server 11 SP3 (32 / 64 bit) - Fedora core 19 (64 bit) - Ubuntu 12.04.2 (64 bit) / 12.10 (64 bit) <p>Virtual</p> <ul style="list-style-type: none"> - VMWare ESXi 5.5
Environment	
Temperature	<p>Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C</p>

* For detailed product information, please visit our website: <http://www.asrockrack.com/>

1.3 Unique Features

Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows[®]. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

1.4 Motherboard Layout

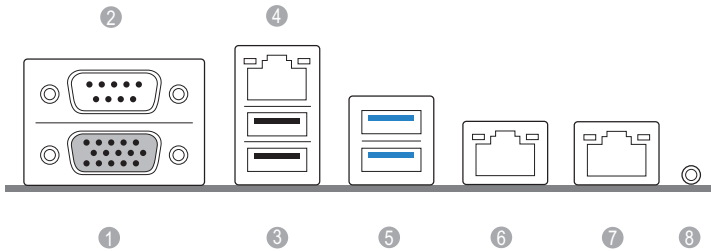


No.	Description
1	Rear Fan Connector (REAR_FAN1)
2	ATX Power Connector (ATXPWR1)
3	PSU SMBus Connector (PSU_SMB1)
4	PSU Jumpers (PSU_ALT_SEL3)
5	PSU Jumpers (PSU_DATA_SEL2)
6	PSU Jumpers (PSU_CLK_SEL1)
7	2 x 240-pin DDR3 DIMM Slots (DDR3_A2, DDR3_B2, White)
8	2 x 240-pin DDR3 DIMM Slots (DDR3_A1, DDR3_B1, Blue)
9	Non Maskable Interrupt Button (NMI_BTN1)
10	CPU Fan Connector (CPU_FAN1)
11	Front Fan Connector (FRNT_FAN1)
12	Front Fan Connector (FRNT_FAN2)
13	Front Fan Connector (FRNT_FAN3)
14	ATX 12V Power Connector (ATX12V1)
15	Clear CMOS Pad (CLRCMOS2)
16	Buzzer (BUZZER1)
17	SATA SGPIO Connector (SATA_SGPIO1)
18	SATA SGPIO Connector (SATA_SGPIO2)
19	Intelligent Platform Management Bus header (IPMB_1)
20	SATA2 Connector (SATA_4_5, Blue)
21	SATA3 Connector (SATA_2_3, White)
22	ME Recovery Jumper (ME_RECOVERY1)
23	SATA3 Connector (SATA_0_1, White)
24	System Panel Header (PANEL1)
25	Auxiliary Panel Header (AUX_PANEL1)
26	LSI SAS Connector (LSI_SAS_8_15)
27	Speaker Header (SPEAKER1)
28	Vertical Type A USB 2.0 (USB7)
29	LSI SAS Connector (LSI_SAS_0_7)
30	SGPIO Connector (LSI_SGPIO1)*
31	USB 3.0 Header (USB3_3_4)
32	USB 2.0 Header (USB_5_6)
33	USB 2.0 Header (USB_3_4)
34	Thermal Sensor Header (TR1)

No.	Description
35	TPM Header (TPM1)
36	COM Port Header (COM2)
37	BMC SMB Header (BMC_SMB_1)
38	BMC SMB Header (BMC_SMB_2)
39	BMC SMB Header (BMC_SMB_3)
40	Front Lan LED Connector (FRONT_LED_LAN34)

**Please connect the LSI SAS Connector to the SGPIOB with the provided SGPIO 8PIN Cable for SGPIO signal configurations. For more information about the SGPIOB, please refer to the section entitled "SGPIO Board" (see p.30).*

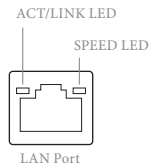
1.5 I/O Panel



No.	Description	No.	Description
1	D-Sub Port (VGA)	5	USB 3.0 Port (USB3_1_2)
2	Serial Port (COM1)	6	LAN RJ-45 Port (LAN1)**
3	USB 2.0 Ports (USB_1_2)	7	LAN RJ-45 Port (LAN2)**
4	Dedicated IPMI LAN Port*	8	UID Switch/LED (UID_SW1)

LAN Port LED Indications

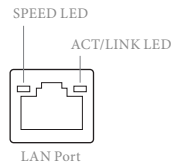
*There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.



Dedicated IPMI LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10M bps connection or no link
Blinking Yellow	Data Activity	Yellow	100M bps connection
On	Link	Green	1Gbps connection

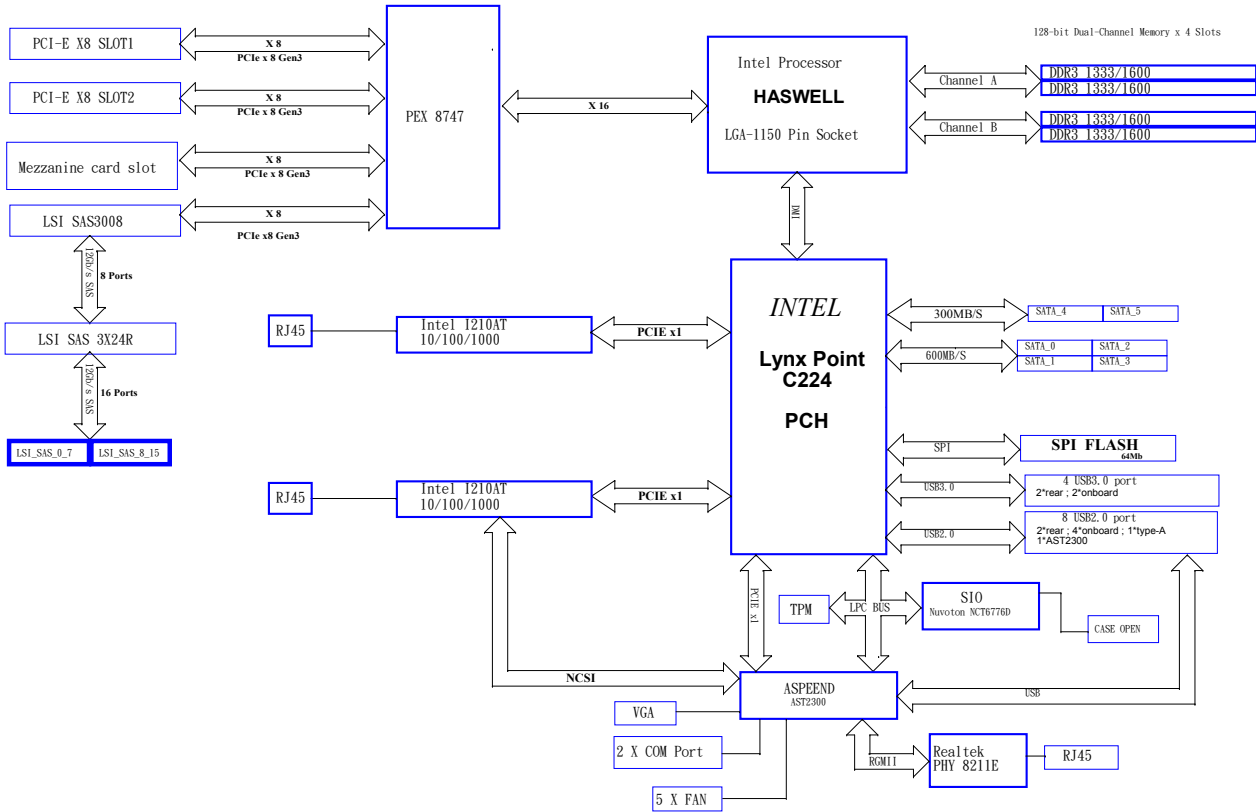
**There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.



LAN Port (LAN1, LAN2) LED Indications

Speed LED		Activity / Link LED	
Status	Description	Status	Description
Off	10Mbps connection or no link	Off	No Link
Yellow	100Mbps connection	Blinking Green	Data Activity
Green	1Gbps connection	On	Link

1.6 Block Diagram



Chapter 2 Installation

This is an ATX form factor (12.0" x 9.6", 30.5 x 24.4 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.



Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

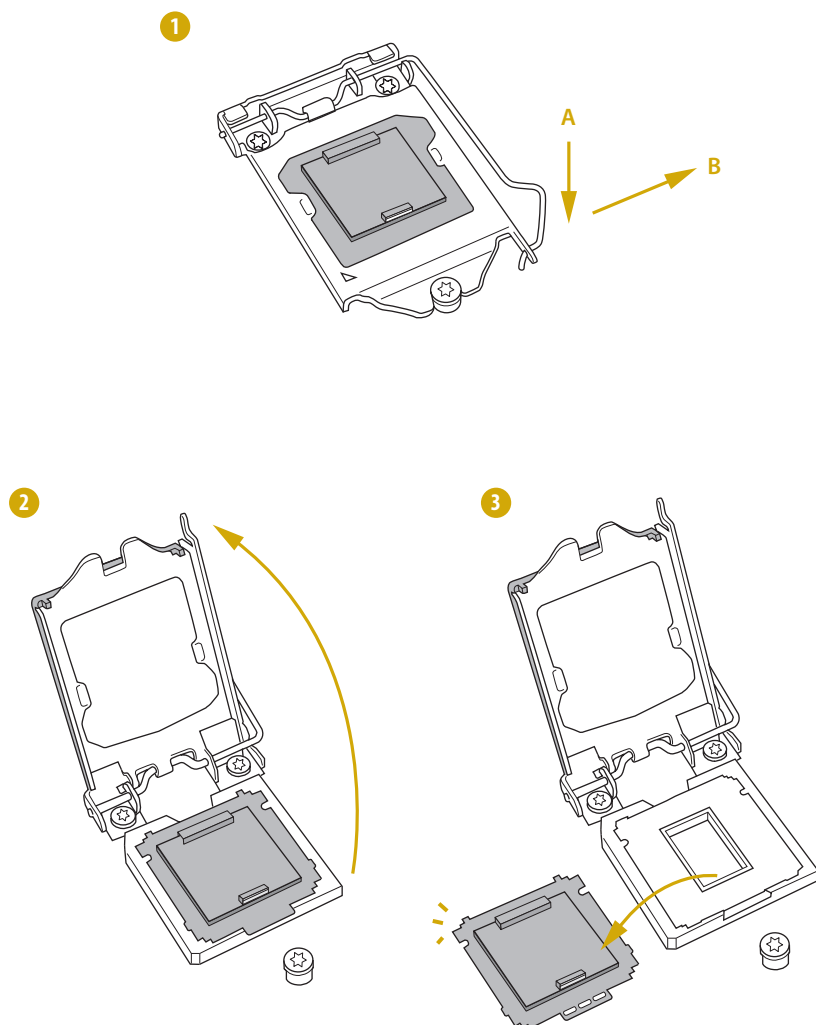
2.3 Installing the CPU



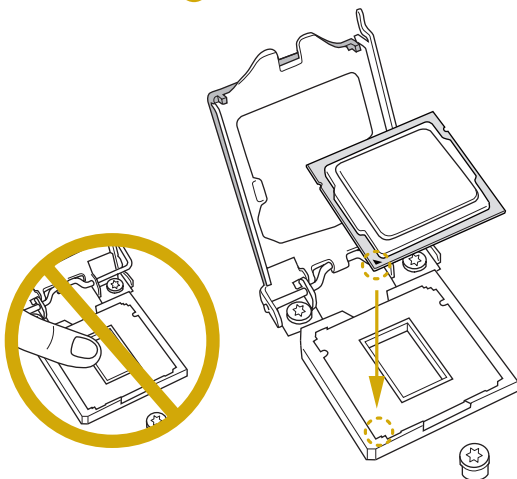
1. Before you insert the 1150-Pin CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.



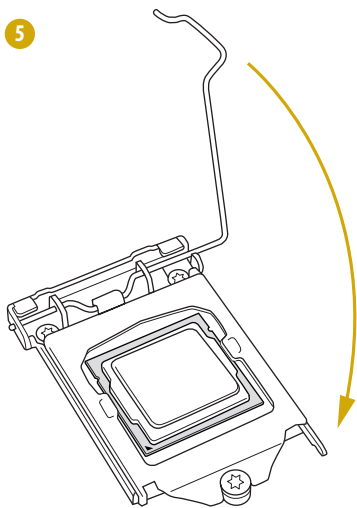
Illustrations in this User Manual are provided for reference only and may slightly differ from actual product appearances.



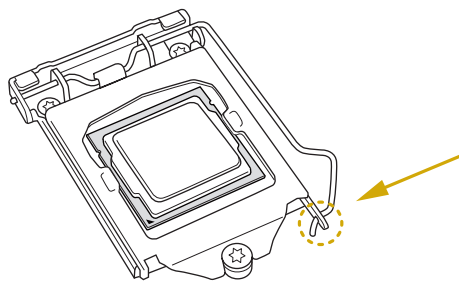
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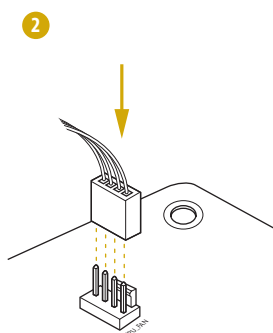
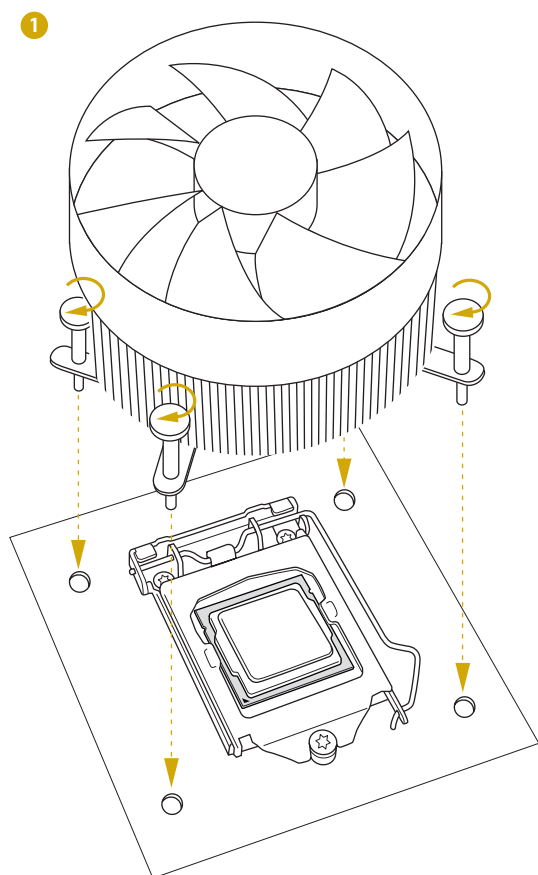
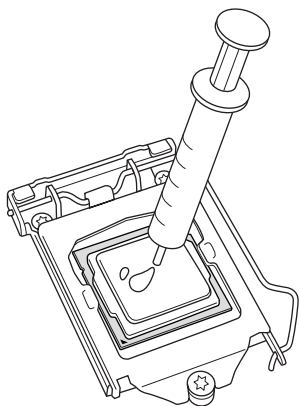


6



Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

2.4 Installing the CPU Fan and Heatsink



2.5 Installation of Memory Modules (DIMM)

This motherboard provides four 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chip-type) memory modules in the DDR3 DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.

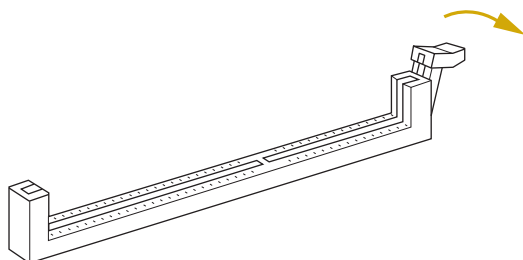


1. *It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and DIMM may be damaged.*
2. *If you install only one memory module or two non identical memory modules, it is unable to activate Dual Channel Memory Technology.*
3. *Some DDR3 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.*

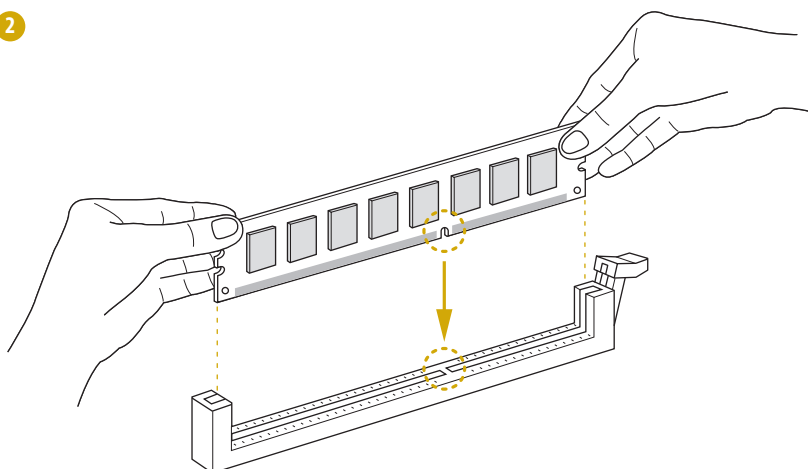


1. *The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.*
2. *Please make sure to disconnect the power supply before adding or removing DIMMs or system components.*

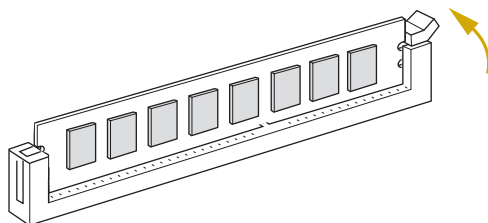
1



2



3



2.6 Expansion Slots (Mezzanine Card Slot and PCI Express Slots)

There is 1 mezzanine card slot and 2 PCI Express slots on the motherboard.

Mezzanine card slot :

The mezzanine card slot (MEZZ_MB1) is used for mezzanine cards. (This Connector follows Open Compute Mezzanine Card pin definition, which provides further 10G Ethernet support capability.)

PCIE slots:

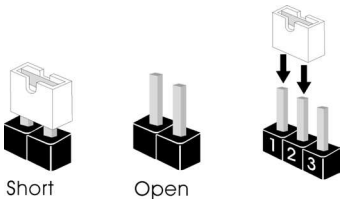
PCIE1 and PCIE2 (PCIE 3.0 x16 slots) are used for PCI Express x8 lane width graphics cards.

Installing an expansion card

- Step 1. Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
- Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).
- Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.
- Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 5. Fasten the card to the chassis with screws.
- Step 6. Replace the system cover.

2.7 Jumper Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.



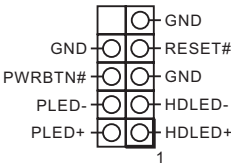
ME Recovery Jumper (3-pin ME_RECOVERY1) (see p.6, No.22)	1_2 	2_3
	Normal Mode (Default)	ME Recovery Mode
PSU Jumper (9-pin PSU Jumper) (see p.6, No.4, 5, and 6)	1_2 	2_3
	PSU_SMBus loads the data via PCH chip	PSU_SMBus loads the data via BMC chip (Default)

2.8 Onboard Headers and Connectors



Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.6, No. 24)



This header accommodates several system front panel functions.



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):

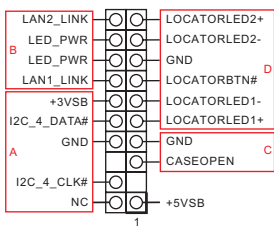
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header
(18-pin AUX_PANEL1)
(see p.6, No. 7)



This header supports multiple functions on the front panel, including the front panel SMB, internet status indicator and chassis intrusion pin.



- A. Front panel SMBus connecting pin (6-pin FPSMB)**
This header allows you to connect SMBus (System Management Bus) equipment. It can be used for communication between peripheral equipment in the system, which has slower transmission rates, and power management equipment.
- B. Internet status indicator (2-pin LAN1_LED, LAN2_LED)**
These two 2-pin headers allow you to use the Gigabit internet indicator cable to connect to the LAN status indicator. When this indicator flickers, it means that the internet is properly connected.
- C. Chassis intrusion pin (2-pin CHASSIS)**
This header is provided for host computer chassis with chassis intrusion detection designs. In addition, it must also work with external detection equipment, such as a chassis intrusion detection sensor or a microswitch. When this function is activated, if any chassis component movement occurs, the sensor will immediately detect it and send a signal to this header, and the system will then record this chassis intrusion event. The default setting is set to the CASEOPEN and GND pin; this function is off.
- D. Locator LED (6-pin LOCATOR)**
This header is for the locator switch and LED on the front panel.

Serial ATA2 Connectors
(SATA_4_5)
(see p.6, No. 20)



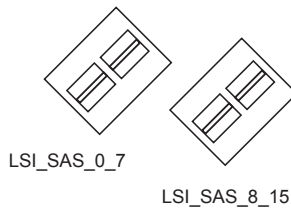
These two SATA2 connectors support SATA data cables for internal storage devices with up to 3.0 Gb/s data transfer rate.

Serial ATA3 Connectors
(SATA_0_1)
(see p.6, No. 23)
(SATA_2_3)
(see p.6, No. 21)



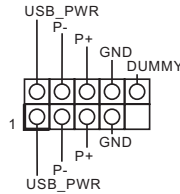
These four Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

Mini SAS HD Connectors
(LSI_SAS_0_7)
(see p.6, No. 29)
(LSI_SAS_8_15)
(see p.6, No. 26)



These two Mini SAS HD connectors support SAS/SATA data cables for internal storage devices. The current SAS3/ SATA3 interface allows up to 12.0 Gb/s data transfer rate. For connecting SAS HDDs, please contact SAS data cable dealers.

USB 2.0 Headers
(9-pin USB_3_4)
(see p.6, No. 33)
(9-pin USB_5_6)
(see p.6, No. 32)

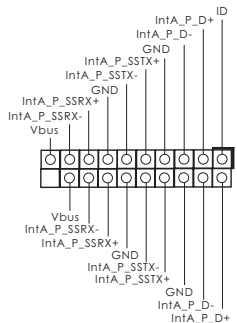


Besides two default USB 2.0 ports on the I/O panel, there are two USB 2.0 headers and one port on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

USB 2.0 Connector
(USB7)
(see p.6, No. 28)



USB 3.0 Header
(19-pin USB3_3_4)
(see p.6, No. 31)



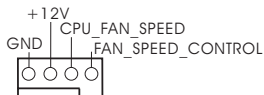
Besides one USB 3.0 port on the I/O panel, there is one header on this motherboard. This USB 3.0 header can support two ports.

Chassis Speaker Header
(4-pin SPEAKER1)
(see p.6, No. 27)



Please connect the chassis speaker to this header.

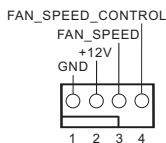
CPU Fan Connector
(4-pin CPU_FAN1)
(see p.6, No. 10)



This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

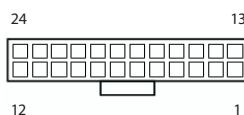
**For more details, please refer to the Cooler QVL list on the ASRock Rack website.*

Front and Rear Fan Connectors
(4-pin FRNT_FAN1)
(4-pin FRNT_FAN2)
(4-pin FRNT_FAN3)
(4-pin REAR_FAN1)
(see p.6, No. 11, 12, 13, 1)



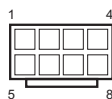
Please connect fan cables to the fan connectors and match the black wire to the ground pin. All fans support Fan Control.

ATX Power Connector
(24-pin ATXPWR1)
(see p.6, No.2)



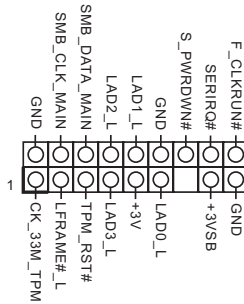
This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13.

ATX 12V Power Connector
(8-pin ATX12V1)
(see p.6, No. 14)



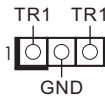
This motherboard provides a 4-pin ATX 12V power connector.

TPM Header
(17-pin TPM1)
(see p.6, No. 35)



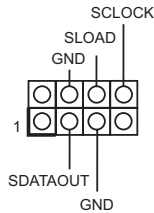
This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

Thermal Sensor header
(3-pin TR1)
(see p.6, No. 34)



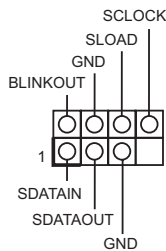
Please connect the thermal sensor cable to either pin 1-2 or pin 2-3 and the other end to the device which you wish to monitor its temperature.

Serial General Purpose
Input/Output Headers
(7-pin SATA_SGPIO1)
(see p.6, No. 17)
(7-pin SATA_SGPIO2)
(see p.6, No. 18)

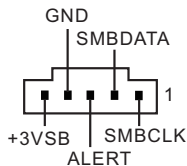


These headers support Serial Link interface for onboard SAS / SATA connections.

(7-pin LSI_SGPIO1)
(see p.6, No. 30)



PSU SMBus
(PSU_SMB1)
(see p.6, No. 3)



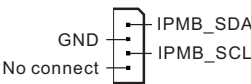
PSU SMBus monitors the status of the power supply, fan and system temperature.

Non Maskable Interrupt
Button Header
(NMI_BTN1)
(see p.6, No. 9)



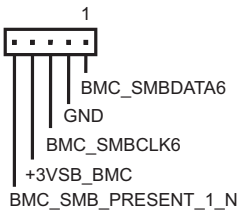
Please connect a NMI device
to this header

Intelligent Platform
Management Bus header
(4-pin IPMB_1)
(see p.6, No. 19)



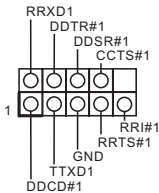
This 4-pin connector is used
to provide a cabled base-board
or front panel connection for
value added features and 3rd-
party add-in cards, such as
Emergency Management cards,
that provide management
features using the IPMB.

Baseboard Management
Controller SMBus Headers
(5-pin BMC_SMB_1)
(5-pin BMC_SMB_2)
(5-pin BMC_SMB_3)
(see p.6, No. 37, 38 and 39)



These headers are used for the
SM BUS devices.

Serial Port Header
(9-pin COM2)
(see p.6, No. 36)



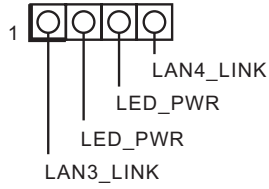
This COM2 header supports a
serial port module.

Clear CMOS Pad
(CLR CMOS2)
(see p.6, No. 15)



CLRCMOS2 allows you to
clear the data in CMOS. To
clear CMOS, take out the
CMOS battery and short the
Clear CMOS Pad.

Front Lan LED Connector
(FRONT_LED_LAN34)
(see p.6, No. 40)



This 4-pin connector is used
for the front LAN status
indicator.

2.9 Unit Identification purpose LED/Switch

With the UID button, You are able to locate the server you're working on from behind a rack of servers.

Unit Identification
purpose LED/Switch
(UID_SW1)



When the UID button on the front or rear panel is pressed, the front/rear UID blue LED indicator flashes. Press the UID button again to stop the indicator from flashing.

2.10 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.



If you want to use RAID mode on SATA ports, please make a copy of "Serial ATA For Floppy Disk" driver from the support CD to your USB storage device first. Browse and Install this driver during the installation of your operating system, after installing the driver you may continue to install the operating system.

2.11 Dr. Debug

Dr. Debug is used to provide code information, which makes troubleshooting even easier. Please see the diagrams below for reading the Dr. Debug codes.

Code	Description
00	Please check if the CPU is installed correctly and then clear CMOS.
0d	Problem related to memory, VGA card or other devices. Please clear CMOS, re-install the memory and VGA card, and remove other USB, PCI devices.
01 - 54 (except 0d), 5A- 60	Problem related to memory. Please re-install the CPU and memory then clear CMOS. If the problem still exists, please install only one memory module or try using other memory modules.
55	The Memory could not be detected. Please re-install the memory and CPU. If the problem still exists, please install only one memory module or try using other memory modules.
61 - 91	Chipset initialization error. Please press reset or clear CMOS.
92 - 99	Problem related to PCI-E devices. Please re-install PCI-E devices or try installing them in other slots. If the problem still exists, please remove all PCI-E devices or try using another VGA card.
A0 - A7	Problem related to IDE or SATA devices. Please re-install IDE and SATA devices. If the problem still exists, please clear CMOS and try removing all SATA devices.
b0	Problem related to memory. Please re-install the CPU and memory. If the problem still exists, please install only one memory module or try using other memory modules.
b4	Problem related to USB devices. Please try removing all USB devices.
b7	Problem related to memory. Please re-install the CPU and memory then clear CMOS. If the problem still exists, please install only one memory module or try using other memory modules.
d6	The VGA could not be recognized. Please clear CMOS and try re-installing the VGA card. If the problem still exists, please try installing the VGA card in other slots or use other VGA cards.
d7	The Keyboard and mouse could not be recognized. Please try re-installing the keyboard and mouse.
d8	Invalid Password.
FF	Please check if the CPU is installed correctly and then clear CMOS.

2.12 Dual LAN and Teaming Operation Guide

Dual LAN with Teaming enabled on this motherboard allows two single connections to act as one single connection for twice the transmission bandwidth, making data transmission more effective and improving the quality of transmission of distant images. Fault tolerance on the dual LAN network prevents network downtime by transferring the workload from a failed port to a working port.



The speed of transmission is subject to the actual network environment or status even with Teaming enabled.

Before setting up Teaming, please make sure whether your Switch (or Router) supports Teaming (IEEE 802.3ad Link Aggregation). You can specify a preferred adapter in Intel PROSet. Under normal conditions, the Primary adapter handles all non-TCP/IP traffic. The Secondary adapter will receive fallback traffic if the primary fails. If the Preferred Primary adapter fails, but is later restored to an active status, control is automatically switched back to the Preferred Primary adapter.

Step 1

From **Device Manager**, open the properties of a team.

Step 2

Click the **Settings** tab.

Step 3

Click the **Modify Team** button.

Step 4

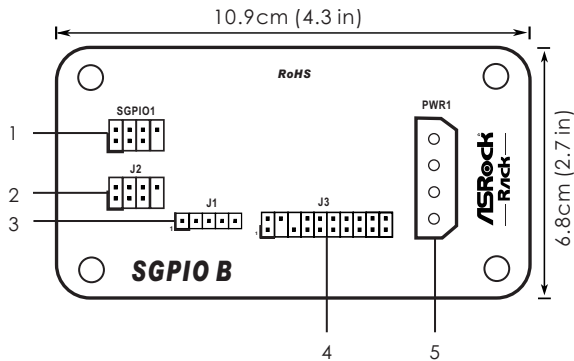
Select the adapter you want to be the primary adapter and click the **Set Primary** button.

If you do not specify a preferred primary adapter, the software will choose an adapter of the highest capability (model and speed) to act as the default primary. If a failover occurs, another adapter becomes the primary. The adapter will, however, rejoin the team as a non-primary.

2.13 SGPIO Board

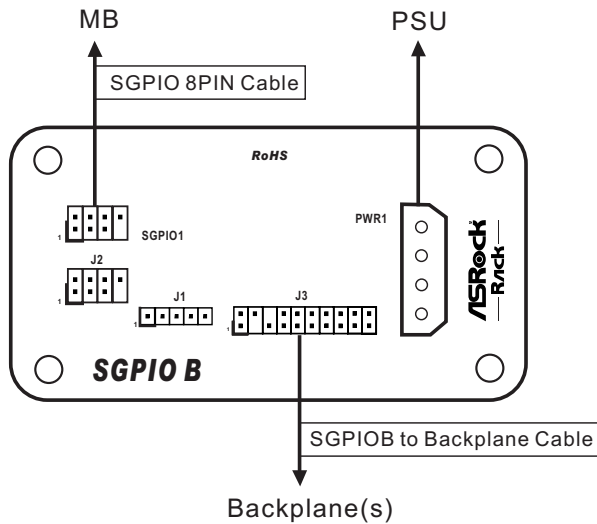
The SGPIO Board (SGPIOB) allows the SGPIO signals from this motherboard to be interpreted into LED indicators on the storage backplanes.

Layout



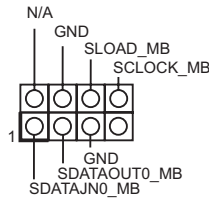
No.	Description
1	Serial General Purpose Input/Output Header (SGPIO1)
2	SGPIO Jumper (J2)
3	Debug Header (J1)
4	HDD Activity LED Header (J3)
5	DC Power Connector (PWR1)

Connections



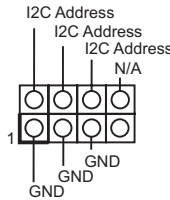
Onboard Headers and Connectors

Serial General Purpose
Input/Output Header
(7-pin SGPIO1)



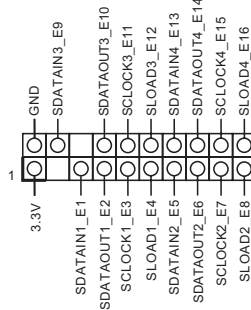
This header support Serial Link interface for onboard SAS / SATA connections. Please connect this header with the SGPIO Connector (LSI_SGPIO1) (see p.6, No.30) on the motherboard via the provided SGPIO 8PIN Cable.

SGPIO Jumper
(8-pin J2)



This jumper allows the SGPIO mode selection.

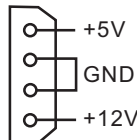
HDD Activity LED
Header
(18-pin J3)



This 18-pin connector is used for the front HDD status indicators. Please connect this header with the HDD LED pins on the backplanes via the provided SGIOB to Backplane Cable.

**For more information about the backplanes, please refer to the user's manual that comes with your chassis.*

DC Power Connector
(4-pin PWR1)

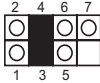


The 4-pin connectors provide power to the SGPIO board.

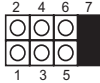
Jumper Setup

SGPIO Jumper (J2)

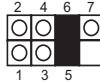
Please use the jumper to select the SGPIO signal mode depending on the backplanes you use.



Mode 1: (Default)
4 x 12-bit SGPIO signals



Mode 2:
2 x 24-bit SGPIO signals



Mode 3:
16 x GPIO signals

Signal Grouping

Mode 1				
Group	HDD	Function	Corresponding Pin on the J3 Header	
1	HDD1~HDD4	DATAOUT	SDATAOUT1_E2	Pin7
		DATAIN	SDATAIN1_E1	Pin5
		CLOCK	SCLOCK1_E3	Pin9
		LOAD	SLOAD1_E4	Pin11
2	HDD5~HDD8	DATAOUT	SDATAOUT2_E6	Pin15
		DATAIN	SDATAIN2_E5	Pin13
		CLOCK	SCLOCK2_E7	Pin17
		LOAD	SLOAD2_E8	Pin19
3	HDD9~HDD12	DATAOUT	SDATAOUT3_E10	Pin8
		DATAIN	SDATAIN3_E9	Pin4
		CLOCK	SCLOCK3_E11	Pin10
		LOAD	SLOAD3_E12	Pin12
4	HDD13~HDD16	DATAOUT	SDATAOUT4_E14	Pin16
		DATAIN	SDATAIN4_E13	Pin14
		CLOCK	SCLOCK4_E15	Pin18
		LOAD	SLOAD2_E16	Pin20

Mode 2				
Group	HDD	Function	Corresponding Pin on the J3 Header	
1	HDD1~HDD8	DATAOUT	SDATAOUT1_E2	Pin7
		DATAIN	SDATAIN1_E1	Pin5
		CLOCK	SCLOCK1_E3	Pin9
		LOAD	SLOAD1_E4	Pin11
2	HDD9~HDD16	DATAOUT	SDATAOUT2_E6	Pin15
		DATAIN	SDATAIN2_E5	Pin13
		CLOCK	SCLOCK2_E7	Pin17
		LOAD	SLOAD2_E8	Pin19

Mode 3				
Group	HDD	Function	Corresponding Pin on the J3 Header	
1	HDD1	Error	SDATAIN1_E1	Pin5
2	HDD2	Error	SDATAOUT1_E2	Pin7
3	HDD3	Error	SCLOCK1_E3	Pin9
4	HDD4	Error	SLOAD1_E4	Pin11
5	HDD5	Error	SDATAIN2_E5	Pin13
6	HDD6	Error	SDATAOUT2_E6	Pin15
7	HDD7	Error	SCLOCK2_E7	Pin17
8	HDD8	Error	SLOAD2_E8	Pin19
9	HDD9	Error	SDATAIN3_E9	Pin4
10	HDD10	Error	SDATAOUT3_E10	Pin8
11	HDD11	Error	SCLOCK3_E11	Pin10
12	HDD12	Error	SLOAD3_E12	Pin12
13	HDD13	Error	SDATAIN4_E13	Pin14
14	HDD14	Error	SDATAOUT4_E14	Pin16
15	HDD15	Error	SCLOCK4_E15	Pin18
16	HDD16	Error	SLOAD2_E16	Pin20

Chapter 3 UEFI Setup Utility

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY; otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctrl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Item	Description
Main	For setting system time/date information
H/W Monitor	Displays current hardware status
Advanced	For advanced system configurations
Boot	For configuring boot settings and boot priority
Security	For security settings
Event Logs	For event log configuration
Server Mgmt	For managing the server
Save & Exit	Exit the current screen or the UEFI Setup Utility

Use <←→> key or <→> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

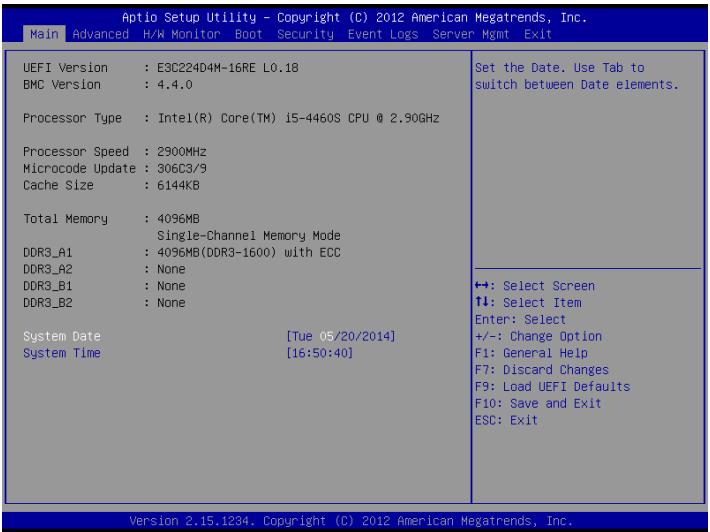
3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Tab>	Switch to next function
<Enter>	To bring up the selected screen
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the UEFI SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

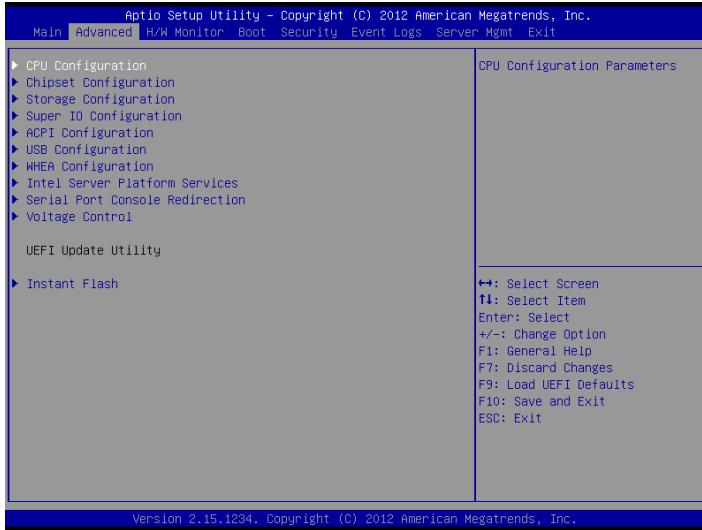
3.2 Main Screen

Once you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview. The Main screen provides system overview information and allows you to set the system time and date.



3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration, USB Configuration, WHEA Configuration, Intel Server Platform Services, Serial Port Console Redirection and Voltage Control.

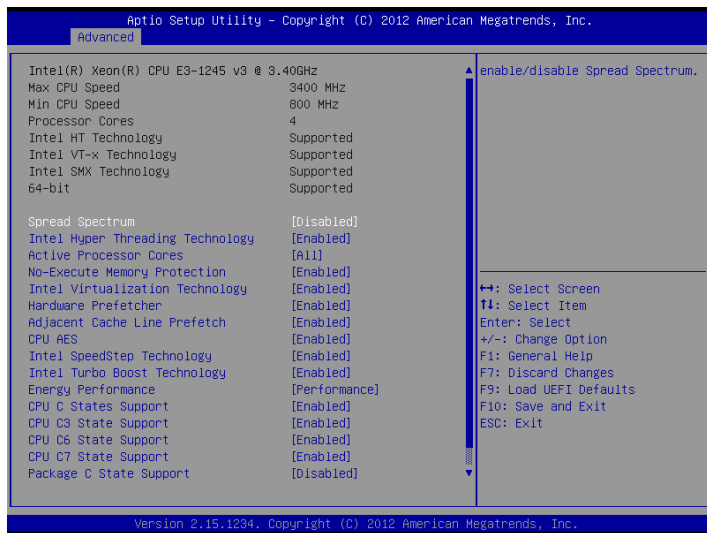


Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows. Just save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process is completed.

3.3.1 CPU Configuration



Spread Spectrum

Select [Auto] for better system stability.

Intel Hyper Threading Technology

To enable this feature, a computer system with an Intel processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology is required. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

Active Processor Cores

Use this item to select the number of cores to enable in each processor package. The default value is [All].

No-Execute Memory Protection

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with “No Execute (NX) Memory Protection” can prevent data pages from being used by malicious software to execute codes. This option will be hidden if the current CPU does not support No-Execute Memory Protection.

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize

the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

Hardware Prefetcher

Use this turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Use this to turn on/off prefetching of adjacent cache lines.

CPU AES

Enable/disable CPU Advanced Encryption Standard instructions.

Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.



Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

Intel Turbo Boost Technology

Use this item to enable or disable Intel Turbo Boost Mode Technology. Turbo Boost Mode allows processor cores to run faster than marked frequency in specific conditions. The default value is [Enabled].

Energy Performance

Use this item to configure Energy Performance.

Enhance Halt State (C1E)

All processors support the Halt State (C1). The C1 state is supported through the native processor instructions HLT and MWAIT and requires no hardware support from the chipset. In the C1 power state, the processor maintains the context of the system caches.

CPU C3 State Support

Use this to enable or disable CPU C3 (ACPI C2) report to OS.

CPU C6 State Support

Use this to enable or disable CPU C6 (ACPI C3) report to OS.

CPU C7 State Support

Use this to enable or disable CPU C7 (ACPI C3) report to OS.

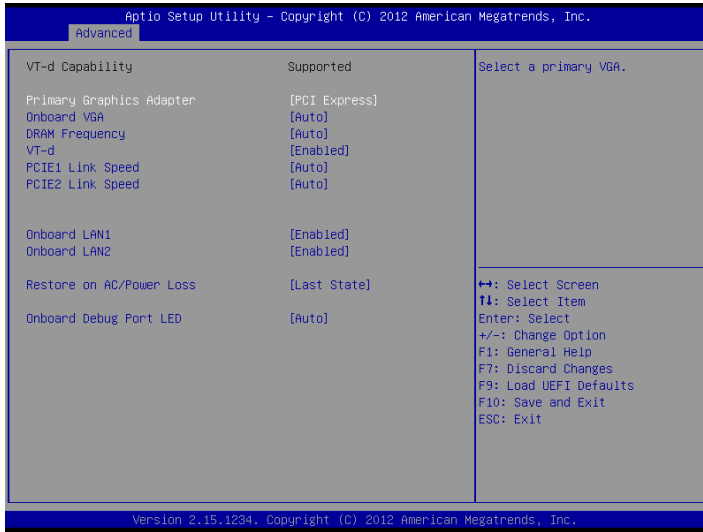
Package C State Support

Selected option will program into C State package limit register. The default value is [Auto].

Intel TXT(LT) Support

Use this option to enable or disable Intel(R) TXT(LT) support. The default value is [Disabled]..

3.3.2 Chipset Configuration



Primary Graphics Adapter

This item will switch the PCI Bus scanning order while searching for video card. It allows you to select the type of Primary VGA in case of multiple video controllers. The default value of this feature is [PCI Express]. Configuration options: [Onboard], [PCI] and [PCI Express].

Onboard VGA

Enable or disable the onboard VGA.

DRAM Frequency

This allows you to configure the DRAM frequency.

VT-d

Use this item to enable/disable Intel(R) Virtualization Technology for Directed I/O..

PCIE1 Link Speed

Select the link speed from the PLX chip to the PCIE slot for PCIE1.

PCIE2 Link Speed

Select the link speed from the PLX chip to the PCIE slot for PCIE2.

Onboard LAN1

This allows you to enable or disable the Onboard LAN1.

Onboard LAN2

This allows you to enable or disable the Onboard LAN2.

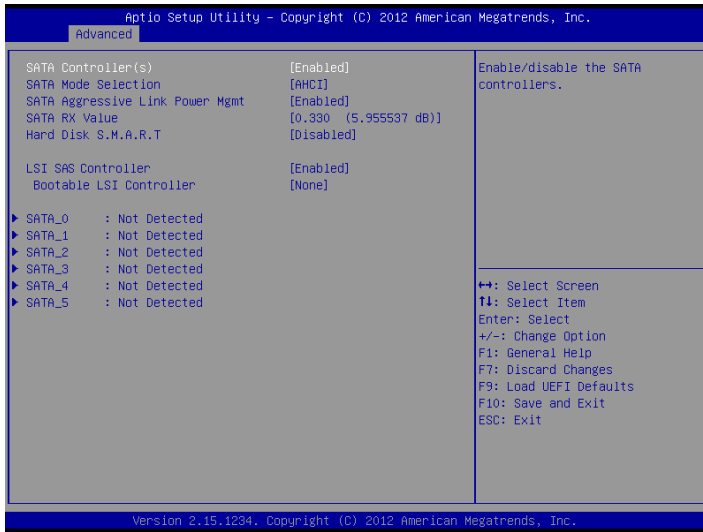
Restore on AC/Power Loss

This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

Onboard Debug Port LED

Enable/disable the onboard Dr. Debug LED.

3.3.3 Storage Configuration



SATA Controller(s)

Use this item to enable or disable the SATA Controller feature.

SATA Mode Selection

This item is for SATA_0 to SATA_5 ports. Use this to select SATA mode. Configuration options: [IDE Mode], [AHCI Mode], [RAID Mode] and [Disabled]. The default value is [AHCI Mode].



1. If you want to use RAID mode on SATA ports, please make a copy of "Serial ATA For Floppy Disk" driver from the support CD to your USB storage device first. Browse and Install this driver during the installation of your operating system, after installing the driver you may continue to install the operating system.
2. AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Management

Use this item to configure SATA Aggressive Link Power Management.

SATA RX Value

Try selecting a different value if the SATA port encounters HDD compatibility issues.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature.

LSI SAS Controller

Enable/disable the LSI SAS controllers.

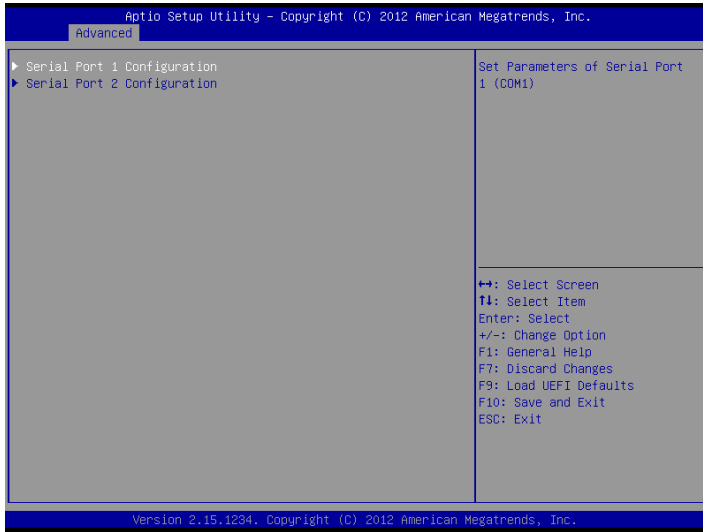
Bootable LSI Controller

Use this to select LSI SAS Option ROM.



We recommend to use Intel® C224 SATA ports (SATA_0 to SATA_5) for your bootable devices. This will minimum your boot time and get the best performance. But if you still want to boot from the LSI SAS controller, you can enable it from the UEFI.

3.3.4 Super IO Configuration



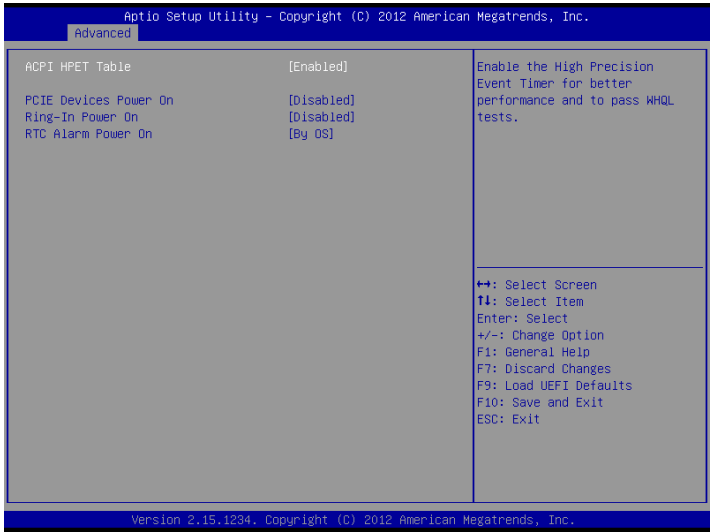
Serial Port 1 Configuration

Use this item to configure the onboard serial port 1.

Serial Port 2 Configuration

Use this item to configure the onboard serial port 2.

3.3.5 ACPI Configuration



ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled].

PCIE Devices Power On

Use this item to enable or disable PCIE devices to turn on the system from the power-soft-off mode.

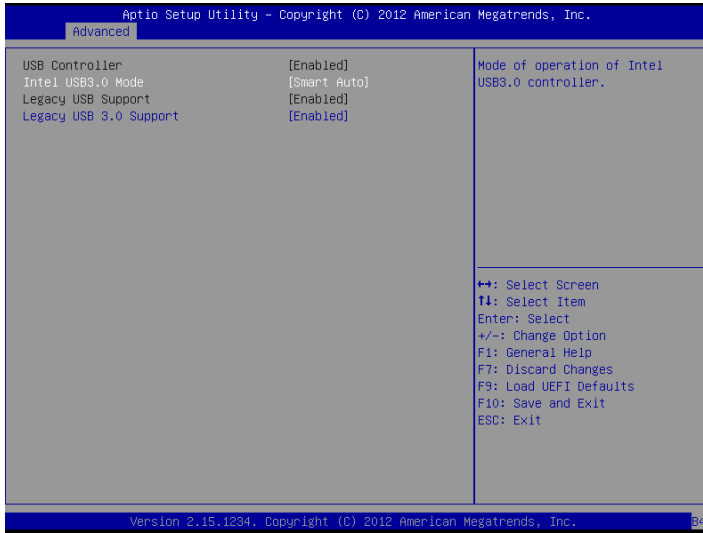
Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

3.3.6 USB Configuration



USB Controller

Enable or disable all the USB ports.

Intel USB 3.0 Mode

Enable or disable all the USB 3.0 ports

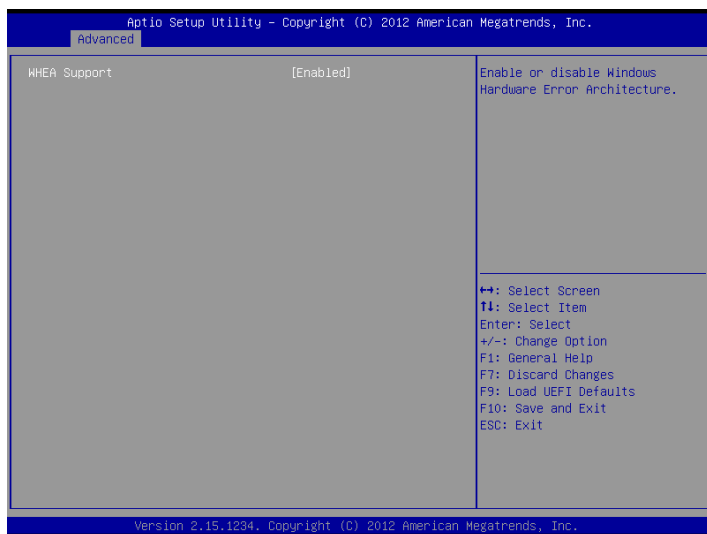
Legacy USB Support

Enable or disable Legacy OS Support for USB 2.0 devices. If you encounter USB compatibility issues it is recommended to disable legacy USB support. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only.

Legacy USB 3.0 Support

Enable or disable Legacy OS Support for USB 3.0 devices.

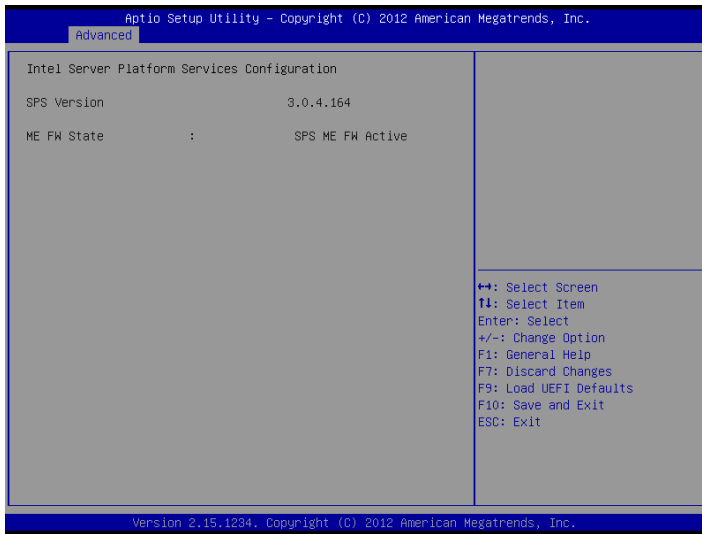
3.3.7 WHEA Configuration



WHEA Support

Use this option to enable or disable Windows Hardware Error Architecture. The default value is [Enabled].

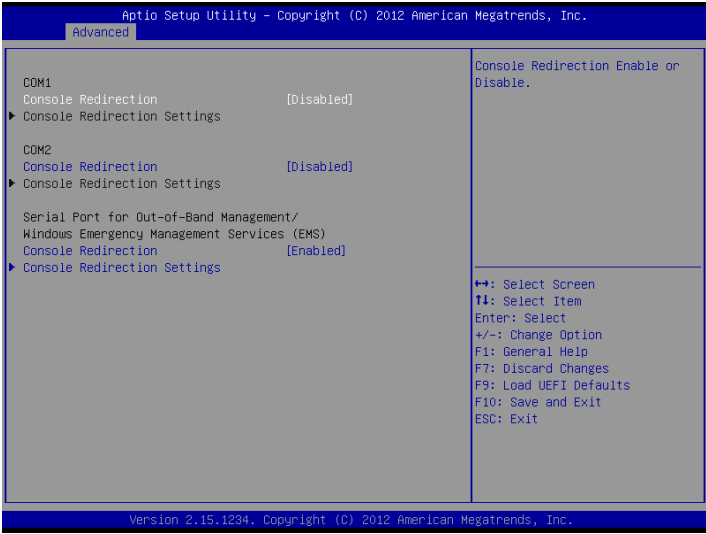
3.3.8 Intel Server Platform Services



Intel Server Platform Services

Configure Intel Server Platform Services.

3.3.9 Serial Port Console Redirection



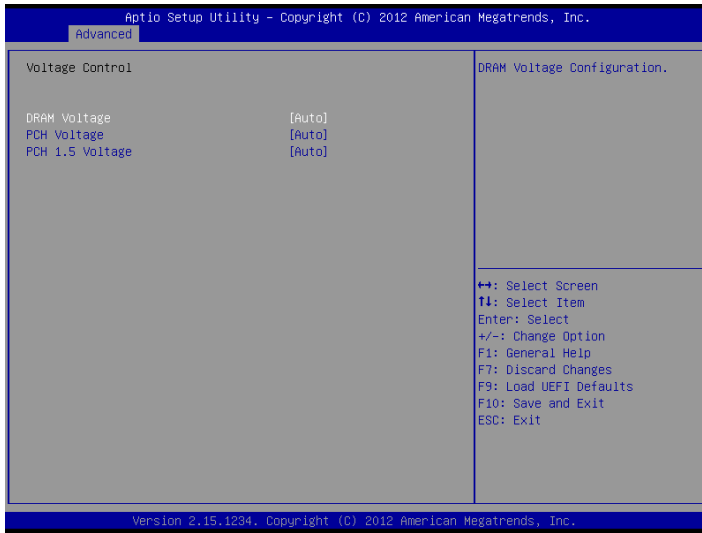
Console Redirection

Use this option to enable or disable Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings.

3.3.10 Voltage Control



DRAM Voltage

Use this to select DRAM Voltage. The default value is [Auto].

PCH Voltage

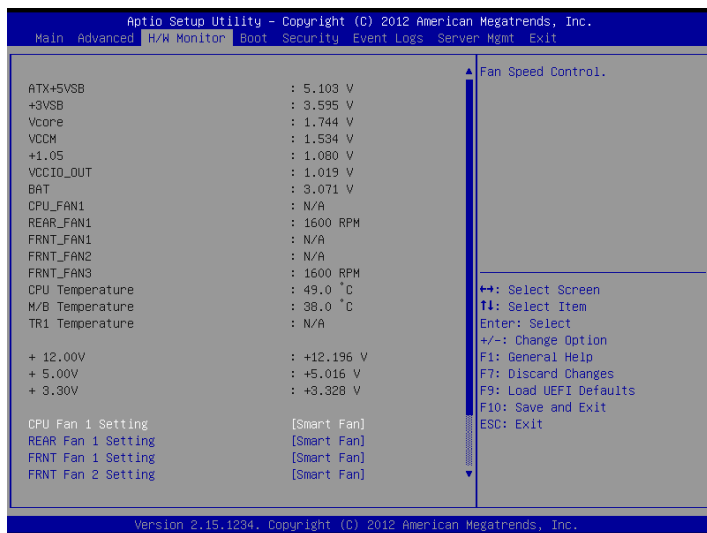
Use this to select PCH Voltage. The default value is [Auto].

PCH 1.5V Voltage

I/O 1.5V Voltage. Use default settings for best performance.

3.4 H/W Monitor Screen (Hardware Health Event Monitoring)

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature and the critical voltage.



CPU Fan 1 Setting

This allows you to set the speed of CPU fan 1. The default value is [Smart Fan].

REAR Fan 1 Setting

This allows you to set the speed of REAR Fan 1. The default value is [Smart Fan].

FRNT Fan 1 Setting

This allows you to set the speed of FRNT Fan 1. The default value is [Smart Fan].

FRNT Fan 2 Setting

This allows you to set the speed of FRNT Fan 2. The default value is [Smart Fan].

FRNT Fan 3 Setting

This allows you to set the speed of FRNT Fan 3. The default value is [Smart Fan].

Set Smart Fan Temp and Duty

Smart Fan Temp Control

Smart Fan Temp x (x means 1 to 11 stage)

This allows you to set temperature for each stage.

Smart Fan Duty Control

Smart Fan Duty x (x means 1 to 11 stage)

This allows you to set duty cycle for each stage..

Watch Dog Timer

This allows you to enable or disable the Watch Dog Timer. The default value is [Disabled].

Case Open Feature

This allows you to enable or disable the Case Open Feature. The default value is [Enabled].

Clear Status

Enable to clear case open status if case open has been detected.

3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Boot From Onboard LAN

Allow the system to be waked up by the onboard LAN.

Setup Prompt Timeout

This shows the number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Bootup NumLock State

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Full Screen Logo

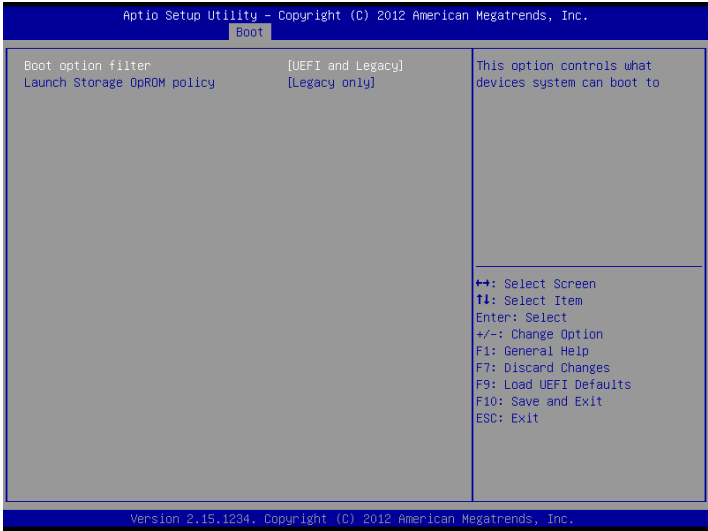
Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option "Full Screen Logo" but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

CSM Parameters

Use this option to configure the parameters of OpROM execution, boot options filter, etc.



Boot Option Filter

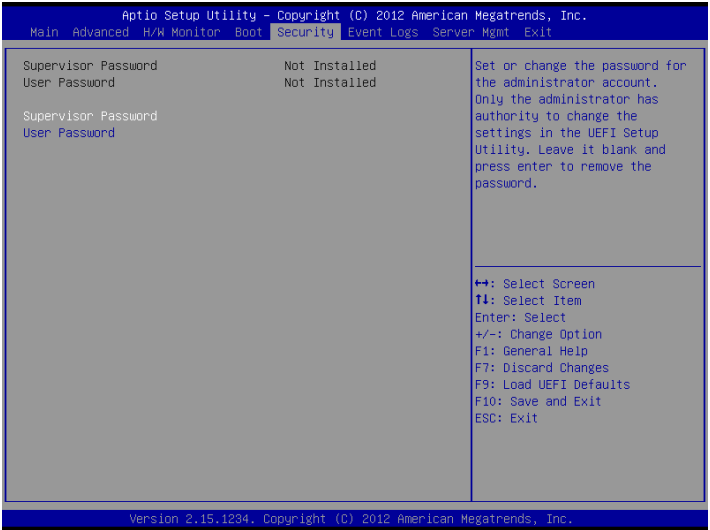
Use this option to control what devices system can boot to. Configuration options: [UEFI and Legacy], [Legacy only] and [UEFI only].

Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only.

3.6 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.



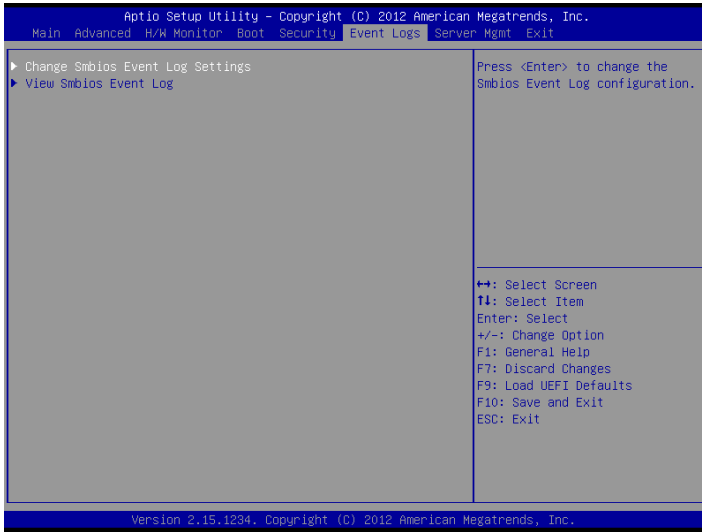
Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

3.7 Event Logs



Change Smbios Event Log Settings

This allows you to configure the Smbios Event Log Settings.

Smbios Event Log

Use this item to enable or disable all features of the SMBIOS Event Logging during system boot.

Erase Event Log

The options include [No], [Yes, Next reset] and [Yes, Every reset]. If Yes is selected, all logged events will be erased.

When Log is Full

Use this item to choose options for reactions to a full Smbios Event Log. The options include [Do Nothing] and [Erase Immediately].

MECI (Multiple Event Count Increment)

Use this item to enter the increment value for the multiple event counter. The valid range is from 1 to 255.

METW (Multiple Event Time Window)

Use this item to specify the number of minutes which must pass between duplicate log

entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes.

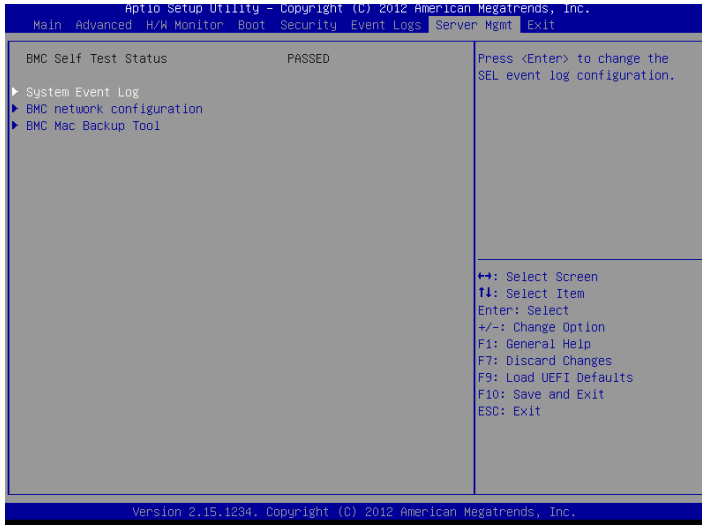
View Smbios Event Log

Press <Enter> to view the Smbios Event Log records. Caution: All values changed here do not take effect until computer is restarted.



All values changed here do not take effect until computer is restarted.

3.8 Server Mgmt (Server Management)



System Event Log

Enter to configure System Event Logging features during boot.

BMC Network Configuration

Enter to configure BMC Network parameters.

Configuration Address Source

Select to configure BMC network parameters statically or dynamically (by BIOS or BMC).
Configuration options: [Unspecified], [Static] and [Dynamic].

Unspecified: BMC network parameters are configured by BMC itself.

Static: Manually enter the IP Address, Subnet Mask and Gateway Address in the BIOS for BMC LAN channel configuration.

Dynamic: IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server.

To configure BMC network parameters using the BIOS setup, select either [Static] or [Dynamic] option.

To configure BMC network parameters using the BMC web interface, select [Unspecified] option.

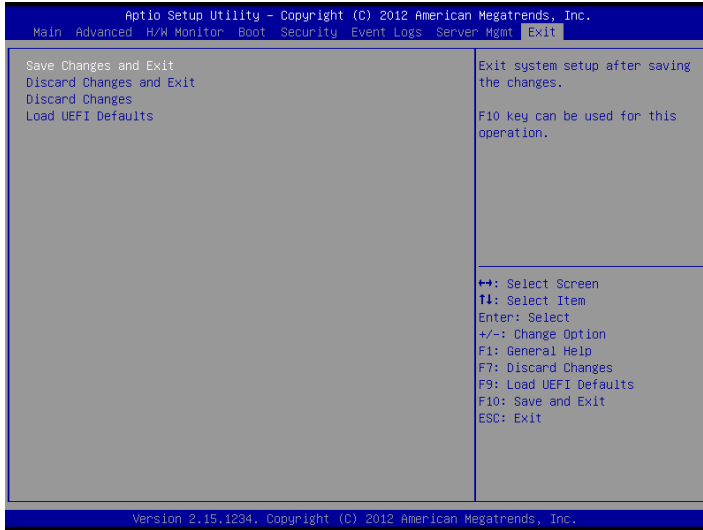


When [Dynamic] or [Static] is selected, do NOT modify the BMC network settings on the IPMI web page.

BMC Mac Backup Tool

Use this to restore BMC Mac from the backup.

3.9 Exit Screen



Save Changes and Exit

When you select this option, the following message “Save configuration changes and exit setup?” will pop-out. Select [Yes] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, the following message “Discard changes and exit setup?” will pop-out. Select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, the following message “Discard changes?” will pop-out. Select [Yes] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices..

Chapter 4 Software Support

4.1 Install Operating System

This motherboard supports Microsoft® Windows® Server 2008 R2 SP1 (64 bit) / 2012 (64 bit) / 2012 R2 (64 bit) / Linux compliant. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer your OS documentation for more information.

**Please download the Intel® SATA Floppy Image driver from the ASRock Rack's website (www.asrockrack.com) to your USB drive or simply install the SATA driver from the Support CD while installing OS in SATA RAID mode.*

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASSETUP.EXE" from the BIN folder in the Support CD to display the menu.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application softwares that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, welcome to visit ASRock Rack's website at <http://www.asrockrack.com>; or you may contact your dealer for further information.

Chapter 5 Troubleshooting

5.1 Troubleshooting Procedures

Follow the procedures below to troubleshoot your system.



Always unplug the power cord before adding, removing or changing any hardware components. Failure to do so may cause physical injuries to you and damages to motherboard components.

1. Disconnect the power cable and check whether the PWR LED is off.
2. Unplug all cables, connectors and remove all add-on cards from the motherboard. Make sure that the jumpers are set to default settings.
3. Confirm that there are no short circuits between the motherboard and the chassis.
4. Install a CPU and fan on the motherboard, then connect the chassis speaker and power LED.

If there is no power...

1. Confirm that there are no short circuits between the motherboard and the chassis.
2. Make sure that the jumpers are set to default settings.
3. Check the settings of the 115V/230V switch on the power supply.
4. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.

If there is no video...

1. Try replugging the monitor cables and power cord.
2. Check for memory errors.

If there are memory errors...

1. Verify that the DIMM modules are properly seated in the slots.
2. Use recommended DDR3 1600/1333/1066 ECC DIMMs.
3. If you have installed more than one DIMM modules, they should be identical with the same brand, speed, size and chip-type.
4. Try inserting different DIMM modules into different slots to identify faulty ones.
5. Check the settings of the 115V/230V switch on the power supply.

Unable to save system setup configurations...

1. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.
2. Confirm whether your power supply provides adequate and stable power.

Other problem...

1. Try searching keywords related to your problem on ASRock Rack's FAQ page:
<http://www.asrockrack.com/support/>

5.2 Technical Support Procedures

If you have tried the troubleshooting procedures mentioned above and the problems are still unsolved, please contact ASRock Rack's technical support with the following information:

1. Your contact information
2. Model name, BIOS version and problem type.
3. System configuration.
4. Problem description.

You may contact ASRock Rack's technical support at:

<http://www.asrockrack.com/support/tsd.asp>

5.3 Returning Merchandise for Service

For warranty service, the receipt or a copy of your invoice marked with the date of purchase is required. By calling your vendor or going to our RMA website (<http://event.asrockrack.com/tsd.asp>) you may obtain a Returned Merchandise Authorization (RMA) number.

The RMA number should be displayed on the outside of the shipping carton which is mailed prepaid or hand-carried when you return the motherboard to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty does not cover damages incurred in shipping or from failure due to alteration, misuse, abuse or improper maintenance of products.

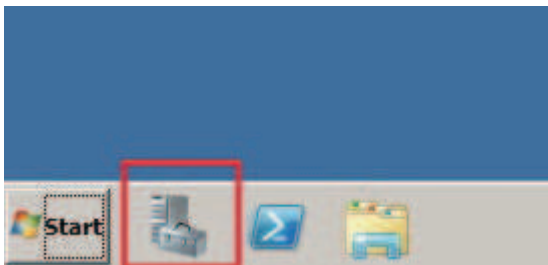
Contact your distributor first for any product related problems during the warranty period.

Chapter 6: Net Framework Installation Guide

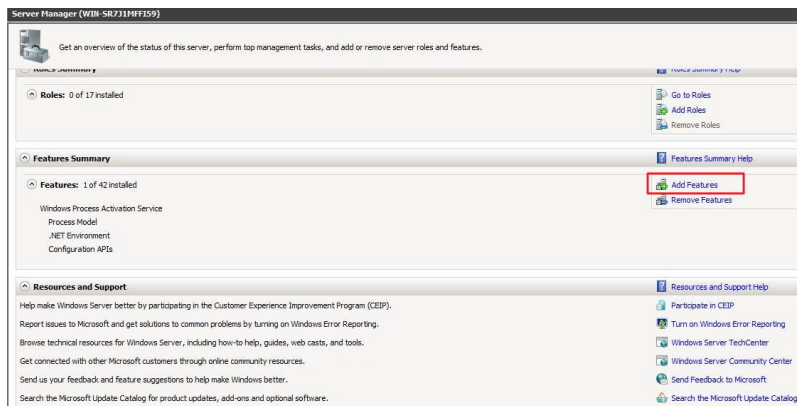
To let Intel® RSTe works properly, it is required to install Net Framework. Please follow the steps below to enable “.Net Framework” feature on Microsoft® Windows® Server 2008 R2.

6.1 Installing .Net Framework 3.5.1 (For Server 2008 R2)

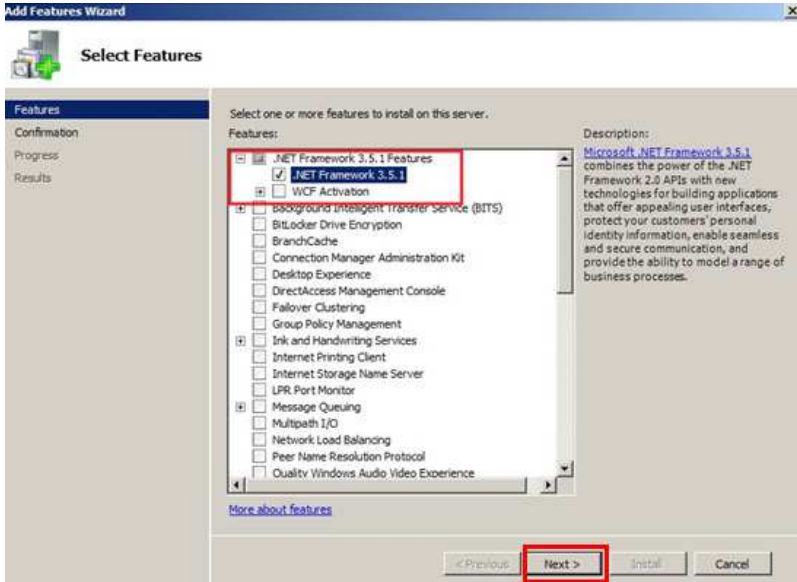
1. Double-click the Server Manager icon in the Windows system tray.



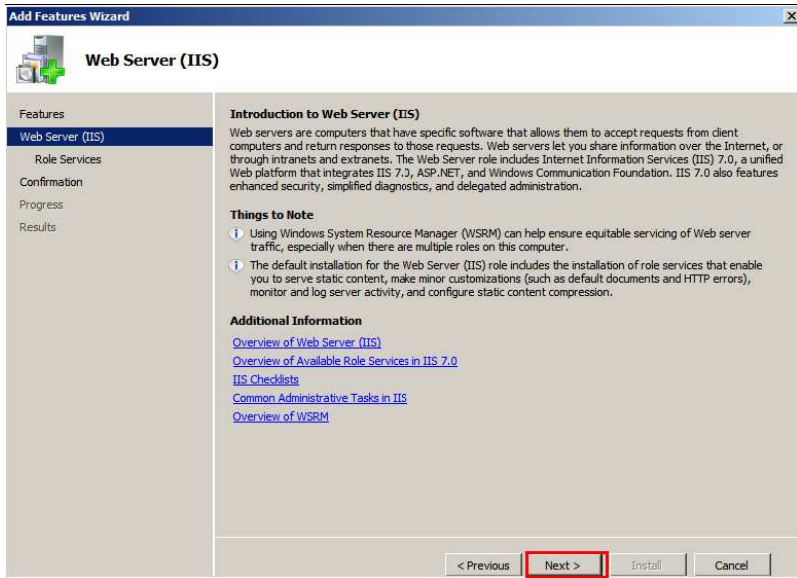
2. Click Add Features in the right hand pane.



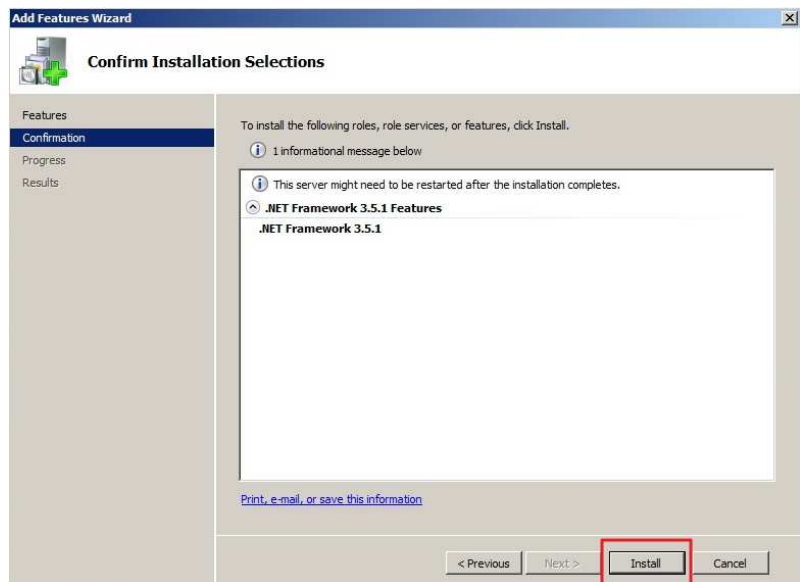
3. Check the box next to .Net Framework 3.5.1 and then click **Next**.



4. Click **Next** to continue.



5. Click **Install** to start installing .Net Framework 3.5.1.



6. After the installation completes, click **Close**.

